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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/051,843	06/29/1998	TRACY WILLSON	11373	8485

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SCULLY SCOTT MURPHY & PRESSER
400 GARDEN CITY PLAZA
GARDEN CITY, NY 11530

EXAMINER	
HOWARD, ZACHARY C	
ART UNIT	PAPER NUMBER
1646	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/051,843	WILLSON ET AL.	
	Examiner	Art Unit	
	Zachary C. Howard	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,7-10,25,28-30 and 36-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *37 and 45* is/are allowed.

6)☒ Claim(s) *1,2,7-10,25,28-30,36,38-42 and 47-51* is/are rejected.

7)☒ Claim(s) *43,44,46 and 52* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 January 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Application, Amendments and/or Claims

The amendment of 1/29/07 has been entered in full. Claims 1, 2, 7,8, 37-44 and 48-52 are amended.

Claims 1, 2, 7-10, 25, 28-30 and 36-52 are under consideration in the instant application.

Withdrawn Objections and/or Rejections

The following page numbers refer to the previous Office Action (7/25/06).

The objection to the specification at pg 3 is *withdrawn* in view of Applicants' replacement Drawings (Figures 1A-1G). The labels on the replacement Drawings (1A-1G) are now consistent with the Brief Description of Figure 1 that refers to 1A-1G.

The objections to claims 37, 39, 40 and 43 at pg 4 for various informalities are *withdrawn* in view of Applicants' amendments to the claims.

The rejection of claims 37, 43, 44, and 52 under 35 U.S.C. § 112, first paragraph at pg 5-8 for lack of enablement is *withdrawn* in view of Applicants' amendments to the claims. However, please note that the rejection of claims 1, 2, 7-10, 25, 28-30, 36, 38-42 and 47-51 under 35 U.S.C. § 112, first paragraph at pg 5-8 for lack of enablement is maintained for the reasons set forth below.

The rejection of claims 37, 43, 44, and 52 under 35 U.S.C. § 112, first paragraph at pg 8-10 for lack of written description is *withdrawn* in view of Applicants' amendments to the claims. However, please note that the rejection of claims 1, 2, 7-10, 25, 28-30, 36, 38-42 and 47-51 under 35 U.S.C. § 112, first paragraph at pg 8-10 for lack of written description maintained for the reasons set forth below.

The rejection of claims 43 and 44 under 35 U.S.C. § 112, first paragraph at pg 11-12 for containing new matter is *withdrawn* in view of Applicants' amendments to the claims. However, please note that the rejection of claims 38-42 and 48-51 under 35

U.S.C. § 112, first paragraph at pg 11-12 for containing new matter is maintained for the reasons set forth below.

The rejection of claims 1, 27, 9, 10, 25, 28-30, 36, 37, 43, 44 and 46-52 under 35 U.S.C § 112, second paragraph, at pg 13-15 for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is *withdrawn* in view of Applicants' amendments to the claims.

The rejection of claims 45 and 46 under 35 U.S.C. § 102(b) at pg 15-16 as anticipated by Lawman et al (U.S. Patent No. 5,256,560) is *withdrawn* in view of Applicants' amendments to claim 45 to limit the claim to isolated host cells that recombinantly express the receptor encoded by SEQ ID NO: 3.

Maintained Objections and/or Rejections

Claim Rejections - 35 USC § 112, 1st paragraph, enablement

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 2, 7-10, 25, 28-30, 36, 38-42 and 47-51 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an isolated nucleic acid molecule encoding a polypeptide comprising the entire extracellular domain of SEQ ID NO: 4, does not reasonably provide enablement for an isolated nucleic acid encoding a derivative of SEQ ID NO: 4 that does not comprise the entire extracellular domain of SEQ ID NO: 4. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. This rejection was set forth previously and maintained at pg 5-8 of the 7/25/06 Office Action.

Applicants' arguments (1/29/07; pg 9-11) as they pertain to the rejection have been fully considered but are not deemed to be persuasive for the following reasons.

Applicants submit that the claims have been amended to include functional language that limits the claimed derivatives to those that bind with IL-13 or are immunologically interactive with antibodies to the IL-13 receptor (NR4) alpha chain. Applicants state that the claims include both functional receptor derivatives (that can bind IL-13) and non-functional derivatives (that are immunologically interactive with antibodies to NR4), and that both derivatives are important to Applicants. Applicants argue that the specification enables the skilled artisan to make and use nucleic acid molecules encoding non-functional derivatives of NR4. Applicants assert that said non-functional derivatives could be used to screen for naturally occurring antibodies to NR4 and that said antibodies may occur in autoimmune diseases. Applicants point to page 22, lines 13-15 of the specification in support.

Applicants' arguments have been fully considered but are not found persuasive. Applicants' amendments to claim 37 have clarified that it is limited to a nucleic acid sequence comprising SEQ ID NO: 3. Applicants' amendments to claims 43 and 44 to replace the phrase "consisting essentially of" with "consisting of" limits these claims to isolated nucleic acid encoding polypeptides consisting of amino acid 28-346 (claim 43) or 28-426 (claim 44) of SEQ ID NO: 4. Furthermore, the amendment to claim 52 has clarified that it is limited to a nucleic acid sequence comprising a sequence encoding the amino acid sequence of SEQ ID NO: 4. Therefore, these claims are each now limited to nucleic acids that comprise a sequence encoding the full-length extracellular domain of SEQ ID NO: 4. Accordingly, the rejection for lack of enablement has been withdrawn for these claims (see the section titled, "Withdrawn Objections and/or Rejections" above).

However, the remaining claims encompass nucleic acids encoding derivatives that are not limited to those comprising the full-length extracellular domain of SEQ ID NO: 4. Applicants have amended the claims such that the encoded derivatives are limited to those with functional limitation that they bind IL-13 or are immunologically interactive with antibodies to IL-13 receptor α chain. However, the claims as amended still encompass a genus of isolated nucleic acids encoding derivatives of a

haemopoietin receptor (HR) of SEQ ID NO: 4, host cells comprising said nucleic acids, and methods of producing recombinant polypeptides.

With respect to "functional" derivatives of SEQ ID NO: 4, Applicants have provided little or no guidance beyond the mere presentation of sequence data to enable one of ordinary skill in the art to determine, without undue experimentation, the positions in the protein (SEQ ID NO: 4) that are tolerant to change (e.g. such as by amino acid substitutions or deletions), and the nature and extent of changes that can be made in these positions. The references of Wells (1990) and Ngo (1995) were cited in the previous Office Action in support of the argument that certain positions in a protein can tolerate only relatively conservative substitutions or none at all. The references of Bork (2000); Skolnick and Fetrow (2000); Doerks *et al.* (June 1998); Smith and Zhang (November 1997); Brenner (April 1999); and Bork and Bairoch (October 1996) were cited in the previous Office Action in support of the argument that function cannot be predicted by structure alone. The specification teaches preparation of soluble murine IL-13Rα; the ability of murine IL-13Rα to bind IL-13 (Example 12); and describes several sub-domains of murine IL-13Rα including a signal sequence, transmembrane domain, extracellular domain (Thr37-Thr344), Ig-like domain (27-117) and haemopoietin receptor domain (118-340) (Examples 6 and 12); and provides an alignment of murine and human IL-13Rα, such that one skilled in the art could determine the location of similar sub-domains in human IL-13Rα. However, the specification does not provide any further guidance as to which variants of murine IL-13RAα retain binding to IL-13. The Examiner agrees that variants that comprise the entire unaltered extracellular domain of human IL-13Rα would probably retain binding to IL-13. However, the claims include a wide range of variants including those with multiple mutations within the extracellular binding domain. The claims also include smaller fragments of the extracellular binding domain, such as the aforementioned domains, none of which have been shown to bind IL-13 when prepared in isolation from the rest of the protein. While some of the claims include the limitation that the polypeptide variants exhibit characteristics (ability to bind IL-13) of the parent polypeptide of SEQ ID NO: 4, the claims encompass an enormous

scope of variants of SEQ ID NO: 4 in which any number of changes can be made to the sequence. Applicants do not disclose any actual or prophetic examples on expected performance parameters of any of the possible variants of polypeptides of SEQ ID NO: 4, other than a sole soluble receptor consisting of the entire extracellular domain of the protein. The specification has not provided a working example of the use of any other variants of the polypeptide of SEQ ID NO: 4, nor sufficient guidance so as to enable one of skill in the art to make such a variant. The specification has failed to teach which amino acids of SEQ ID NO: 4 could be modified so as to produce a polypeptide that is not identical to SEQ ID NO: 4 and yet still retain the activity of the polypeptide of SEQ ID NO: 4. The specification merely invites the skilled artisan to screen an extremely large genus of variants to determine whether or not each variant has the ability to bind IL-13.

With respect to "non-functional" derivatives of SEQ ID NO: 4, the specification does not enable one of skill in the art to make and use nucleic acids encoding non-functional derivatives of SEQ ID NO: 4. The ability to produce antibodies to non-functional derivatives of SEQ ID NO: 4 does not provide a use for such non-functional derivatives. Antibodies to a protein are only useful if the protein to which they bind has a use. Applicants argue that the specification teaches that NR4 or its derivatives can be used to screen for naturally occurring antibodies to NR4 that may occur in autoimmune diseases (pg 22). This has been fully considered but is not found to be persuasive. The specification does not provide any guidance regarding which autoimmune diseases, if any, might produce naturally occurring antibodies to NR4. The specification merely invites the skilled artisan to engage in experimentation to screen samples from patients with various autoimmune diseases with NR4 polypeptide to determine if one or more diseases produces antibodies to NR4. Such experimentation is undue in view of the large number of potential autoimmune diseases to be screened and the lack of predictability whether any autoimmune diseases produce antibodies to NR4. Furthermore, the specification does not teach the structure of any "non-functional" NR4 derivatives that are found in patients with autoimmune diseases. Certain positions in the

sequence may be critical determinants of a proteins' antigenicity, and derivatives of NR4 may lack these critical positions. Therefore, even if an autoimmune disease produced antibodies to NR4, it is not predictable which derivatives of NR4 could be used to screen for antibodies.

At pg 10, Applicants further argue that the specification discloses several examples of sub-domains of either murine or human ECD in Examples 6 and 11. Applicant appears appear to argue that this disclosure provides support for derivatives comprising less than the entire unaltered ECD of SEQ ID NO: 4.

Applicants' arguments have been fully considered but are not found persuasive. The teachings of the specification, including Examples 6 and 11, have been fully considered. The Examiner does not dispute that Example 6 teaches several sub-domains of murine NR4. The skilled artisan could use the alignment with the human NR4 sequence to identify similar domains in the human sequences. However, the mere presentation of residues that comprise potential "domains" of the extracellular domain does not teach the skilled artisan how to make and use derivatives comprising fragments of less than the full-length protein comprising these domains. The specification does not teach that one or more of these domains can bind to IL-13 when used in absence of the remainder of the protein. The specification does not even teach that these domains are to be used as derivatives in the invention. The specification merely invites the skilled artisan to engage in experimentation to determine which derivatives, if any, of NR4 can be used to bind to IL-13. Such experimentation is undue in view of the large number of derivatives encompassed by the claims and the lack of guidance as to structural features required for binding.

At pg 10-11, Applicants further argue that WO 00/18932 (submitted previously) demonstrates that the skilled artisan can readily use the information provided by a nucleic acid molecule to make and use a nucleic acid molecule encoding the "cytokine binding portion of ECD". Applicant submit that the '932 publication (at pg 14, lines 19-20) defines "cytokine binding portion" as "the minimal portion of the extracellular domain necessary to bind the cytokine." Applicants submit that the '932 publication teaches that

fragments smaller than the ECD will function in cytokine binding. Applicants argue that an embodiment of the '932 publication is directed to making and using a polypeptide containing a minimal cytokine binding portion of the ECD of receptor based on the sequence information of the entire ECD. Applicants submit that based on the instant disclosure and the knowledge known in the art "at the critical time", the skilled artisan could make and use variants of NR4 or derivatives of SEQ ID NO: 4 that contain less than the full-length ECD without undue experimentation.

Applicants' arguments have been fully considered but are not found persuasive. The '932 publication has been fully considered. It is noted that the '932 publication has a filing date of 22 September 1999 whereas the instant application was filed 23 October 1996. As stated in MPEP § 2164.05, the specification of an application must be enabling as of the filing date. The instant specification does not provide any teachings regarding derivatives of SEQ ID NO: 4 other than proteins comprising the full-length extracellular domain that can be used to bind to IL-13. The fact that '932 publication defines "cytokine binding portion" as "the minimal portion of the extracellular domain necessary to bind the cytokine" and teaches that fragments of an ECD may bind to a cytokine does not mean that it would not have required undue experimentation at the time of filing of the instant application to identify said "minimal portion" or fragments of the extracellular domain of SEQ ID NO: 4 that can bind IL-13. The instant specification does not contain sufficient guidance to predict which derivatives of SEQ ID NO: 4 can bind to IL-13, and the '932 publication does not support that the skilled artisan could make such a prediction or identify such derivatives without undue experimentation. Furthermore, the instant claims encompass any derivative of SEQ ID NO: 4, not just a "minimal portion" or fragments of the ECD. Therefore, these teachings of the '932 publication are not commensurate in scope with the claimed invention.

In summary, due to the large quantity of experimentation necessary to generate the large number of derivatives recited in the claims and possibly screen same for activity, the lack of direction/guidance presented in the specification regarding which structural features are required in order to provide activity, the absence of working

examples directed to same, the complex nature of the invention, the state of the prior art which establishes the unpredictability of the effects of mutation on protein structure and function, and the breadth of the claims which fail to recite any structural or functional limitations, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

Claim Rejections - 35 USC § 112, 1st paragraph, written description

Claims 1, 2, 7-10, 25, 28-30, 36, 38-42 and 47-51 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This rejection was set forth at pg 8-10 of the 7/25/06 Office Action.

Applicants' arguments (7/25/06; pg 11-12) as they pertain to the rejection have been fully considered but are not deemed to be persuasive for the following reasons.

In the response dated 7/25/06, Applicants submits that the rejection of the claims is overcome and requests withdrawal of the rejection. Applicants submit that the specification provides sufficient descriptive support to satisfy the written description requirement under 35 U.S.C. 112, 1st paragraph. Applicants submit that the claims as amended do not encompass any polynucleotides that are completely unrelated to the polynucleotides of SEQ ID NO: 1 or 3.

Applicants' arguments have been fully considered but are not found persuasive. Applicants' amendments to claim 37 have clarified that it is limited to a nucleic acid sequence comprising SEQ ID NO: 3. Applicants' amendments to claims 43 and 44 to replace the phrase "consisting essentially of" with "consisting of" limits these claims to isolated nucleic acid encoding polypeptides consisting of amino acid 28-346 (claim 43) or 28-426 (claim 44) of SEQ ID NO: 4. Furthermore, the amendment to claim 52 has clarified that it is limited to a nucleic acid sequence comprising a sequence encoding the amino acid sequence of SEQ ID NO: 4. Therefore, these claims are each now limited to

nucleic acids that comprise a sequence encoding the full-length extracellular domain of SEQ ID NO: 4. Accordingly, the rejection for lack of written description has been withdrawn for these claims (see the section titled, "Withdrawn Objections and/or Rejections" above).

However, the remaining claims encompass nucleic acids encoding derivatives that are not limited to those comprising the full-length extracellular domain of SEQ ID NO: 4. Applicants have amended the claims such that the encoded derivatives are limited to those with functional limitation that they bind IL-13 or are immunologically interactive with antibodies to IL-13 receptor α chain. However, the claims as amended still encompass a genus of isolated nucleic acids encoding derivatives of a haemopoietin receptor (HR) of SEQ ID NO: 4, host cells comprising said nucleic acids, and methods of producing recombinant polypeptides. A description of a genus of polynucleotides encoding a genus of polypeptides may be achieved by means of a recitation of a representative number of polypeptides, defined by amino acid sequence, falling within the scope of the genus or of a recitation of structural features common to members of the genus, which features constitute a substantial portion of the genus. *Regents of the University of California v. Eli Lilly & Co.*, 119 F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). The instant specification discloses isolated cDNAs having the sequence of SEQ ID NO: 1 and 3, which encode polypeptides having the sequence SEQ ID NO: 2 and 4. The specification further describes the soluble extracellular domain of the polypeptide of the murine IL-13Rα, and provides an alignment of murine IL-13Rα with human IL-13Rα, such that the specification provides sufficient description of the extracellular domain (residues 28-346). A polynucleotide encoding a polypeptide comprising said extracellular domain could be used to produce a polypeptide that binds IL-13. However, the claims are not limited to polypeptides that comprise the extracellular domain of SEQ ID NO: 4 (residues 28-346). While a functional limitation has been added to the claims, this does not limit the claims structurally. Instead, the claims encompass polynucleotides that vary substantially in length and also in nucleotide composition. Furthermore, the broadly claimed genus

additionally encompasses polynucleotides that may be completely unrelated to the polynucleotide SEQ ID NOs: 1 and 3. For example, in claim 2, a "derivative" of SEQ ID NO: 1 or 3 that encodes a receptor capable of interaction with a derivative of IL-13 does not actually have any particular sequence identity with SEQ ID NO: 1 or 3. The instant disclosure of SEQ ID NOs: 1 and 3, and the extracellular domain of each, does not adequately describe the scope of the claimed genus, which encompasses a substantial variety of subgenera including full-length proteins, chimeric proteins, fusion proteins, allelic variants, and derivatives. Further, polypeptides, comprising fragments, may also be completely unrelated to the polypeptide of SEQ ID NOs: 2 or 4. As such, the instant specification fails to provide sufficient descriptive information, such as definitive structural or functional features of the claimed genus of polypeptides. The alignment between the murine and human IL-13Rα does not provide sufficient descriptive information to identify those derivatives of the receptor that retain the functionality of the parent polypeptide.

Applicants further argue that the arguments directed to the enablement rejection should also be sufficient to demonstrate that the present inventors possessed the full scope of the invention at the time of filing. Applicants cite *Lizardtech, Inc. v. Earth Resource Mapping, Inc.* (Fed. Cir. 2005) as stating that a recitation of how to make and use the invention across the full breadth of the claim is ordinarily sufficient to demonstrate that the inventor possesses the full scope of the invention and vice versa.

Applicants' arguments have been fully considered but are not found persuasive. The Examiner does not dispute the nature of the statement found in the *Lizardtech* decision and cited by Applicants. However, for the reasons set forth above, the specification does not enable the skilled artisan to make and use the full scope of the claim invention. Therefore, in the instant case, a demonstration of possession of the full scope of the invention cannot rely on an enabling disclosure.

Claim Rejections - 35 USC § 112, 1st paragraph, new matter

Claims 38-42 and 48-51 are also rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement because the claims contain new matter. This rejection was set forth at pg 10-13 of the 7/25/06 Office Action.

As set forth previously, each claim encompasses a genus of nucleic acids that does not have support in the specification as originally filed.

Applicants' arguments (1/29/07; pg 13-14) as they pertain to the rejection have been fully considered but are not deemed to be persuasive for the following reasons.

Applicants argue that the rejection under 35 U.S.C. § 112, first paragraph for containing new matter is overcome and request withdrawal of the rejection. Applicants submit that claim 38 has been amended to recite "IL-13 receptor alpha chain" and that this term is clearly described in the specification. Applicants submit that claims 43, 44 and 48-51 have been amended to replace "consisting essentially of" with "consisting of". With respect to claims 43, 44 and 48-51, Applicants submit that specification discloses the specific claimed fragments. Applicants point to Examples 6, 11 and 12, together with Figure 7.

Applicants' arguments have been fully considered but are not found persuasive. Claims 38-42, as amended, each encompass a genus of isolated nucleic acids comprising an extracellular domain of an IL-13 haemopoietin receptor. Claim 38 encompasses a genus of isolated nucleic acids "comprising a sequence of nucleotides that encodes an extracellular domain of a IL-13 receptor alpha chain." The term "IL-13 receptor alpha chain" is defined in the specification as interchangeable with the terms "NR4 receptor" and "IL-13 receptor" (pg 1, lines 23-25). The language used, i.e., "a sequence of nucleotides that encodes an extracellular domain" indicates that the genus is not limited to any particular portion of an extracellular domain (ECD). Claims 39 and 40 each depend from claim 38 and limit the ECD to either an immunoglobulin-like domain (ID; claim 39) or an haemopoietin receptor domain (HRD; claim 40). Claims 39 and 40 broadly encompass any IL-13 receptor alpha chain. Claim 41 depends from claim 39 and limits the ID to consisting essentially of amino acids 28-118 of SEQ ID NO:

4. Claim 42 depends from claim 40 and limits the HRD to consisting essentially of amino acids 119-341 of SEQ ID NO: 4.

The specification teaches the following regarding isolated nucleic acids encoding extracellular domains of hematopoietin receptors. The specification refers to soluble NR4 (IL-13Rα) on pages 7, 9, and 27. On page 27 the specification discusses uses of soluble IL-13Rα, e.g. to prevent interaction between IL-13 and NR4 (which is membrane bound). Page 37 discloses the characterization of the murine NR4, and teaches that the extracellular region of the protein of SEQ ID NO: 2 contain an immunoglobulin domain (amino acids 27-117), in addition to a typical haemopoietin receptor domain (amino acids 118-340). Page 40 teaches production of soluble murine IL-13Rα by using PCR primers specific for the DNA encoding the extracellular region from Thr27 to Thr344. The specification further provides an alignment between murine IL-13Rα and human IL-13Rα, showing strong homology between the extracellular domain of the murine sequence (residues Thr27 to Thr344) and human sequence (residues Thr28 to Thre346, corresponding to residues 28-346 in SEQ ID NO: 4).

As stated above, claim 38 encompasses any extracellular domain from any IL-13 receptor alpha chain. In addition to nucleic acids encoding full-length receptors, this genus encompasses nucleic acids comprising fragments consisting solely of extracellular domains. The specification teaches a single example of this, a nucleic acid consisting of the extracellular domain of SEQ ID NO: 2. Due to the strong homology between SEQ ID NO: 2 and 4, and the general teachings of the specification about soluble IL-13Rα, a nucleic acid consisting of the extracellular domain (Thr27 to Thr344) of SEQ ID NO: 4 would also flow naturally from the specification. However, there is no conception in the specification of a genus of isolated nucleic acid molecules comprising any extracellular domain from any IL-13 receptor alpha chain. Nor does this genus flow naturally from the disclosure of the specification. Therefore, the specification as originally filed lacks support for claims 38-42.

With respect to claims 43, 44 and 48-51, it is noted that Applicants amendments to claims 43 and 44 to replace "consisting essentially of" with "consisting of" have

removed all new matter from these claims and the rejection of these claims has been withdrawn (see the section titled "Withdrawn Objections and/or Rejections" above). However, the rejection is maintained with respect to claims 48-51 for the following reasons. Applicants have amended claims 48-51 to remove "consisting essentially of" and this basis for the rejection set forth previously is now moot. However, claims 48-51 as amended each depend from claim 1 and recite fragments consisting of nucleotides 142-1098 (claim 48); 142-1338 (claim 49); 142-414 (claim 50); or 415-1086 (claim 51). Applicants argue that the specification in Examples 6, 11 and 12 and Figure 7 teaches these specific fragments of SEQ ID NO: 4. This is not found to be persuasive. The specification, including Examples 6, 11 and 12 and Figure 7, has been fully considered. Example 6 describes the cloning and characterization of murine NR4; Example 7 describes the expression pattern of NR4 cDNA; Example 11 describes cloning of human IL-13Rα (NR4); and Figure 7 provides an alignment of the nucleotide and amino acid sequences of murine and human NR4 (IL-13Rα). However, nowhere does Example 6, 11 or 12 or Figure 7 of the specification teach the specific nucleic acid fragments of SEQ ID NO: 4 that are claimed in claims 48-51. Therefore, it is maintained that the specification as originally filed lacks support for claims 48-51.

New objections necessitated by Applicants' amendment

Claims 43, 44, 46 and 52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Claims 37 and 45 are allowable.

Applicants' amendment necessitated the new ground of objection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary C. Howard whose telephone number is 571-272-2877. The examiner can normally be reached on M-F 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary B. Nickol can be reached on 571-272-0835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elizabeth C. Kemmerer

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ELIZABETH KEMMERER
PRIMARY EXAMINER